

Use Cases Document

FBI MobileID

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1 Introduction

1.1 Overview

The document defines functional requirements for the MobileID application. These requirements have been developed for a mobile hardware device with a small screen size.

Functional requirements are the definitions of specific features or services in which the system must provide a response. Section 3 of this document contains complete definitions, in the format of use cases, of all the functional requirements gathered.

1.2 Scope

1.2.1 — Functional Scope

This document describes only the functionality of a user interface (UI) for the MobileID application. Functions and features that are in support of the UI and how the MobileID application processes the data depicted by the UI will be assumed, but not described in the document.

1.2.2 — Organizational Scope

This section addresses the organizations that the MobileID application must interact with in order to successfully identify, gather, and confirm functional and non-functional requirements.

- NIST Biometrics Usability team provides use cases and wireframes for designing a usable user interface according to usability industry standards.
- FBI will validate and verify functional requirements

2 General Description

2.1 MobileID Overview

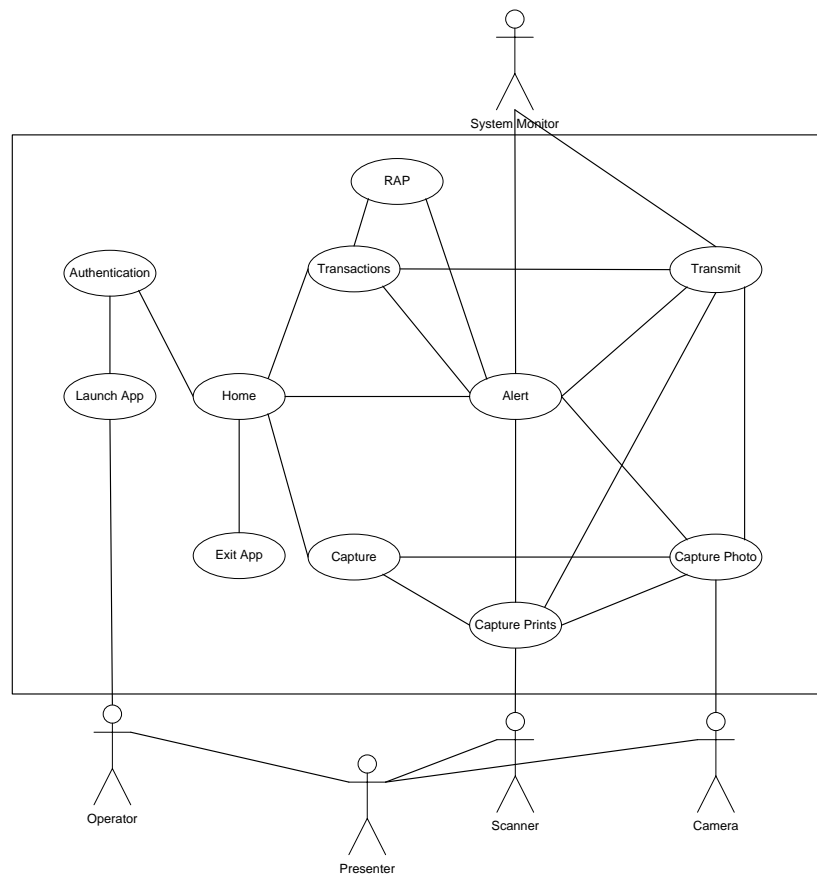


Figure 1 Top Level Use Cases

2.2 System Components

The key functional components that will comprise MobileID include:

- MobileID Application
- Operator Authentication
- System connection/monitoring
- Capture (transaction creation)
 - Fingerprints
 - Photos
- Transactions
- Transmission
- Alert Notice

2.3 Actor Definition

An actor (characterized as a stick figure drawing) is a user/component that plays a role with respect to the system. It is someone or something outside the application that interacts with the MobileID application. The actors defined in this section will be referenced throughout this document, specifically in Section 3 where use cases are modeled/documentated as a part of the application's functional requirements. The defined actors and their definitions are specified below.

- MobileID application operator
- Biometric presenter (Subject)
- Embedded Fingerprint scanner
- Embedded digital camera
- System Monitor

2.3.1 — MobileID application operator

Performs the following tasks:

- Use the Mobile ID application
- Authenticate to the system
- Interact with other actors:
 - Biometric presenter (Subject)
 - Embedded Fingerprint device
 - Embedded digital camera

2.3.2 — Biometric Presenter (Subject)

Performs the following tasks:

- Provides biometrics, e.g. fingerprints, face, and iris

2.3.3 — Embedded Fingerprint scanner

Performs the following tasks:

- Acquires fingerprints images from presenter for Mobile ID application

2.3.4 — Embedded Digital Camera

Performs the following tasks:

- Acquires photographs of presenter for Mobile ID application

2.3.5 — System Monitor

Performs the following tasks:

- Makes system connectivity status available to the application
- Makes operator authentication status available to the application
- Transmits transactions to fingerprint repositories
- Receive repository search responses

2.4 Assumptions and Dependencies

The following section presents the assumptions and dependencies for the MobileID application. Assumptions include items that if changed would affect the specific use cases in Section 3 or items that if changed might impede or divert the direction of development. Dependencies define resources or activities that the project relies upon for successful completion. The assumptions and dependencies include:

Assumptions:

- There will be a method to configure:
 - Audible alert signal (presence, tones, and active time interval)
 - Repository destination
 - Default presentation order for modalities during capture
 - Required modalities (only fingerprints are required according to RISC [1] requirements)
- Help option shall be accessible.

Dependencies:

- The device hosting the Mobile ID application is working properly with the MobileID application. Thus, the following information will be communicated from the hosting device to the MobileID application:
 - Signal Strength of the connectivity, e.g. decibel reading
 - Connectivity sensing, e.g. cellular, wifi, satellite, etc.
- The MobileID application shall be configured for successful operation with biometric capturing devices. The status of the biometric capturing devices will be provided to the application.
- Operators will be biometrically enrolled and maintained in a system not just by the application resident on the mobile device

3 MobileID Use Cases

3.1 Key Components and Use Case Index

The following section outlines the requirements expressed by stakeholders/subject matter experts (SMEs) associated with MobileID application. These requirements are stated in the format of use cases. The use cases revolve around the major key component areas documented in Section 2.2. Table 1 provides a listing of use cases so that they can be easily found.

Table 1 Index of Fully Specified Use cases

Version	Use Case ID	Use Case Name	Page #
1.0	UC – MID.01	Launch MobileID	9
1.0	UC – MID.02	Authenticate	10
1.0	UC – MID.03	MobileID Home	11
1.0	UC – MID.04	Exit MobileID	12
1.0	UC – Capture.01	Capture Biometrics	14
1.0	UC – Fingerprints.01	Capture Fingerprints	15
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1.0	UC – Transmit.01	Transmit Transaction	19
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3.2 Specific Functional Use Cases

3.2.1 — Use Case – Launch MobileID

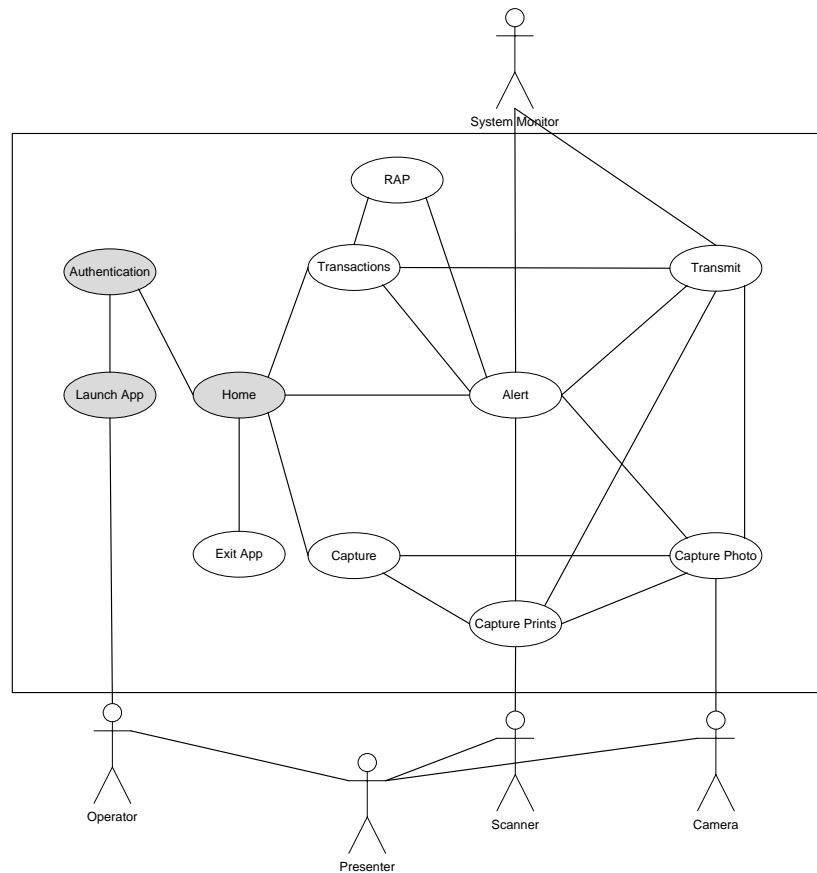


Figure 2 Launch MobileID

3.2.1.1 UC – MID.01 - Launch MobileID

UC- MID.01	Launch MobileID
Actors	Operator
Precondition	None
Postcondition	MobileID application successfully launched
Includes	
Extends From	
Super Use Case	
Trigger	Operator decides to start MobileID application.
Description	

The operator decides to launch MobileID application. The system checks for operator authentication. If the operator is not authenticated then the application presents the authentication use case. After authentication the application presents options to access various functional areas.	
Process Description	
Primary Process Scenario	Launch MobileID Application
Step 1	Operator launches MobileID application.
Step 2	System checks for existing authentication status <ul style="list-style-type: none"> • UC – MID.02 - Authenticate if no authentication exists
Step 3	After successful authentication, MobileID application presents to the operator: <ul style="list-style-type: none"> • UC – MID.03 - MobileID Home
Exceptions, Error Situations	
Errors	<ul style="list-style-type: none"> • MobileID fails to launch: <ul style="list-style-type: none"> ▪ MobileID logs error(s) ▪ MobileID displays an error message indicating the failure of launching MobileID application • Biometric capture device(s) are not available: <ul style="list-style-type: none"> ▪ MobileID displays an error message indicating the device unavailability
Open Issues/Notes	

3.2.1.2 UC – MID.02 - Authenticate

UC- MID.03	Authenticate
Actors	Operator
Precondition	MobileID application successfully launched
Postcondition	UC – MID.03 MobileID Home
Includes	
Extends From	
Super Use Case	UC – MID.01 - Launch MobileID
Trigger	System determines the operator is not authenticated
Description	
The system authenticates the operator with a fingerprint.	
Process Description	
Primary Process Scenario	Authentication

Step 1	MobileID application presents to the operator: <ul style="list-style-type: none"> • An indication of what the expected fingerprint is • A display of platen and active capture area
Step 2	<ul style="list-style-type: none"> • Operator places requested print on scanner platen. • MobileID application displays to the operator: <ul style="list-style-type: none"> ▪ print image from scanner
Step 3	<ul style="list-style-type: none"> • Scanner captures the print image after it determines that the print image is acceptable • Scanner sends the print image to MobileID application for authentication
Step 4	<ul style="list-style-type: none"> • Application presents <i>UC – MID.03</i> - MobileID Home
Exceptions, Error Situations	
Errors	<ul style="list-style-type: none"> • The fingerprint is rejected, MobileID application displays to the operator: <ul style="list-style-type: none"> ▪ the reason for rejection ▪ option to retake the print ▪ option to close the application
Open Issues/Notes	

3.2.1.3 UC – MID.03 - MobileID Home

UC- MID.03	MobileID Home
Actors	Operator
Precondition	Successful launch of MobileID application
Postcondition	MobileID home successfully displayed
Includes	
Extends From	
Super Use Case	UC – MID.01 - Launch MobileID
Trigger	<ul style="list-style-type: none"> • The system determines the operator is authenticated –OR– <ul style="list-style-type: none"> • Operator decides to access the MobileID Home feature from: <ul style="list-style-type: none"> ▪ <i>UC-Fingerprints.01</i> ▪ <i>UC-Photo.01</i> ▪ <i>UC-Transactions.01</i> ▪ <i>UC-Transmit.01</i>
Description	
The application presents MobileID home with options to access various functional areas.	

Process Description	
Primary Process Scenario	MobileID Home
Step 1	MobileID application presents to the operator: <ul style="list-style-type: none"> Options to <ul style="list-style-type: none"> Capture Biometrics Access Transactions Exit MobileID Application
Step 2	<ul style="list-style-type: none"> UC – <i>Capture.01</i> if operator selects Capture Biometrics option UC – <i>Transactions.01</i> if operator selects access Transactions option UC – <i>MID.04</i> if operator selects Exit MobileID Application option
Exceptions, Error Situations	
Exceptions	<ul style="list-style-type: none"> “Capture Biometrics” will only be available if all required modalities (based on configuration described in 2.4) biometric capture devices are functional
Open Issues/Notes	

3.2.1.4 UC – MID.04 - Exit MobileID

UC- MID.04	Exit MobileID
Actors	Operator
Precondition	MobileID application successfully launched.
Postcondition	MobileID application successfully ended.
Includes	
Extends From	
Super Use Case	UC – MID.03 - MobileID Home
Trigger	Operator decides to end MobileID application: <ul style="list-style-type: none"> Select “Exit MobileID Application” in UC – <i>MID.03</i>
Description	
The operator decides to end MobileID application.	
Process Description	
Primary Process Scenario	Exit MobileID Application
Step 1	MobileID application presents to the operator: <ul style="list-style-type: none"> A request to confirm exit.
Step 2	Operator confirms the exit action.
Step 3	MobileID application terminates.
Exceptions, Error Situations	

<i>Exceptions</i>	
<i>Errors</i>	
Open Issues/Notes	

3.2.2 — Use Case – Capture Biometrics

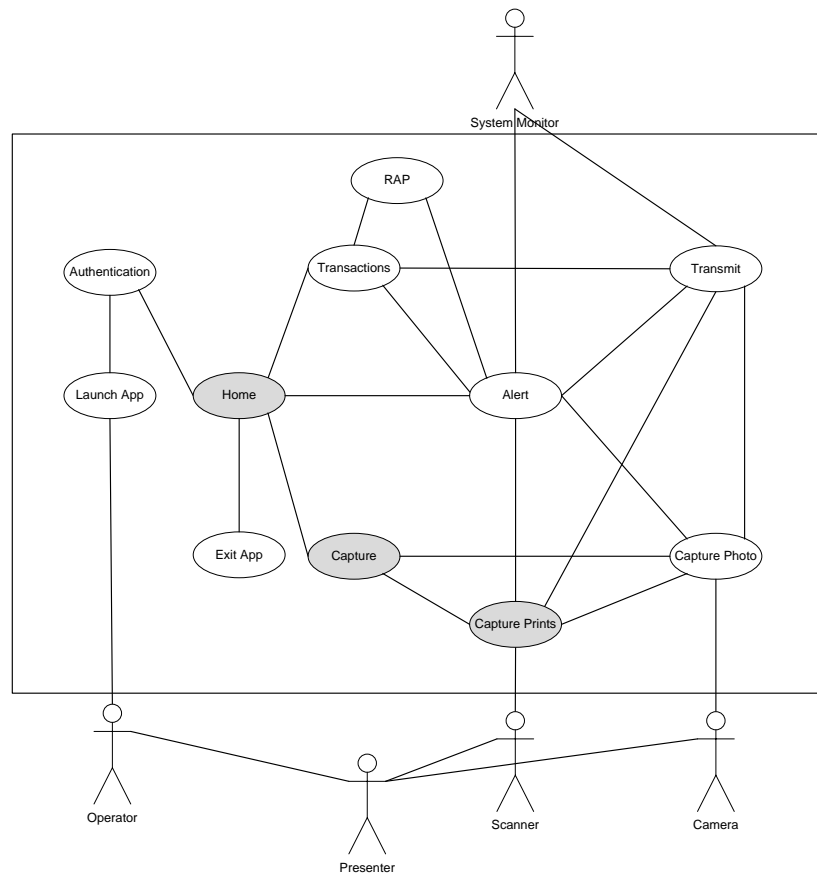


Figure 3 Capture Fingerprints

3.2.2.1 UC – Capture.01 - Capture Biometrics

UC- Capture.01	Capture Biometrics
Actors	Operator
Precondition	MobileID application successfully launched
Postcondition	Application ready to capture fingerprints with option for other biometrics displayed.
Includes	
Extends From	
Super Use Case	UC – MobileID.03 - MobileID Home
Trigger	Operator decides to access capture biometrics feature of the MobileID application.
Description	
The <i>Capture Biometric</i> option provides access to fingerprint capturing process or to the display of other	

biometric capture options.	
Process Description	
Primary Process Scenario	Capture Biometrics
Step 1	MobileID application presents to the operator: <ul style="list-style-type: none"> • An indication of the fingerprint capture • Options for other biometric modalities • Capture status of each modality
Step 2	<ul style="list-style-type: none"> • <i>UC – Fingerprints.01</i> if operator decides to capture fingerprints • <i>UC – Photo.01</i> if operator decides to capture a photo
Exceptions, Error Situations	
Exceptions	<ul style="list-style-type: none"> • Options for other biometric modalities are available only if the corresponding biometric device is functional
Errors	<ul style="list-style-type: none"> •
Open Issues/Notes	

3.2.2.2 UC – Fingerprints.01 - Capture Fingerprints

UC- Fingerprints.01	Capture Fingerprints
Actors	Operator, Presenter, Fingerprint Scanner
Precondition	The operator has chosen the “Capture Biometrics” feature of MobileID application.
Postcondition	The fingerprint capturing process is completed.
Includes	
Extends From	
Super Use Case	UC – Capture.01
Trigger	The operator decides to capture fingerprints in UC – Capture.01.
Description	
The <i>Capture fingerprints</i> process provides a pre-determined capture sequence.	
Process Description	
Primary Process Scenario	fingerprint capture
Step 1	MobileID application presents to the operator: <ul style="list-style-type: none"> • An indication of what the currently expected print is • A display of platen and active capture area • The capture status of any print of the current presenter • Options to access: <ul style="list-style-type: none"> ▪ <i>UC - MID.03 - MobileID Home</i> <ul style="list-style-type: none"> ○ a request to confirm cancellation indicating captured

	<p>modalities, if any, from the current capture process will be lost</p> <ul style="list-style-type: none"> ▪ <i>UC – Transmit.01</i> - Transmit (<i>conditional</i>, see Exception) ▪ <i>UC – Photo.01</i> - Capture Photo
Step 2	<ul style="list-style-type: none"> • Presenter places requested print on scanner platen. • MobileID application displays to the operator: <ul style="list-style-type: none"> ▪ print image from scanner, with the fingertip up as viewed by the operator
Step 3	<ul style="list-style-type: none"> • Scanner captures the print image after it determines that the print image is acceptable • Scanner sends the print image to MobileID application for processing <p>–OR–</p> <ul style="list-style-type: none"> • Operator cancels capture process. MobileID application presents to the operator : <ul style="list-style-type: none"> ▪ a request to confirm cancellation indicating any captured modalities from the current capture process will be lost ▪ Upon operator confirmation, <i>UC – MID.03</i> - MobileID Home
Step 4	<p>MobileID application presents to the operator:</p> <ul style="list-style-type: none"> • Indication of the next expected print in the capture sequence
Step 5	<ul style="list-style-type: none"> • Repeat steps 1 to 3 until: <ul style="list-style-type: none"> ▪ All required print images are captured • Mobile ID application indicates to the operator of the capture process completion
Exceptions, Error Situations	
Exceptions	<ul style="list-style-type: none"> • A print image is rejected, MobileID application displays to the operator: <ul style="list-style-type: none"> ▪ the reason for rejection ▪ option to retake the print ▪ option to cancel the capture process of the current presenter • “Transmit” will only be available when all mandatory prints have been captured
Errors	<ul style="list-style-type: none"> • Scanner fails <ul style="list-style-type: none"> ▪ MobileID application indicates the failure of the scanner ▪ The option to capture prints is inactive
Open Issues/Notes	
<p>If the first fingerprint cannot be captured, the operator can move to a second presenter without exiting the capture process</p>	

3.2.3 Use Case – Photos

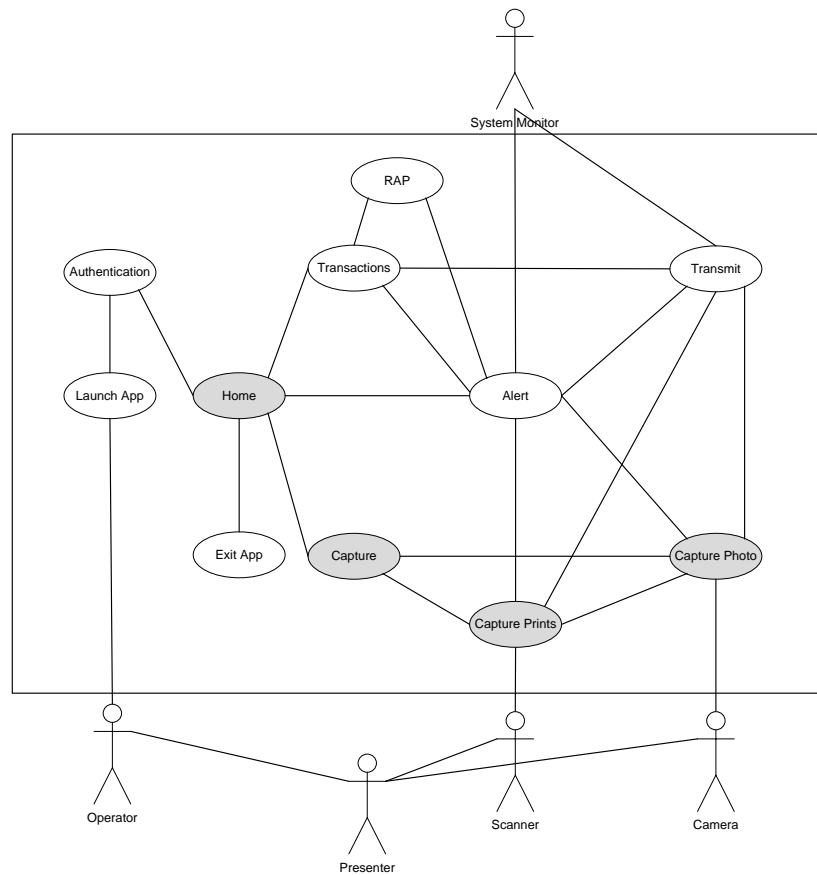


Figure 4 Photos

3.2.3.1 UC – Photo.01 - Capture Photo

UC- Photo.01	Capture Photo
Actors	Operator, presenter, embedded digital camera
Precondition	MobileID application successfully launched
Postcondition	Photo displayed
Includes	
Extends From	UC – Fingerprints.01
Super Use Case	UC – Capture.01
Trigger	Operator decides to access photo feature of the MobileID application.
Description	
The <i>Photo</i> area provides access to photo capturing process.	
Process Description	
Primary Process Scenario	Capture Photo

Step 1	<p>MobileID application presents to the operator:</p> <ul style="list-style-type: none"> • Indication of camera readiness • A display of active view finder • Overlay guide for photo taking • Options to: <ul style="list-style-type: none"> ▪ Take picture ▪ <i>UC – Transmit.01 - Transmit (conditional, see Exception)</i> ▪ <i>UC – MID.03 - MobileID Home</i> <ul style="list-style-type: none"> ○ a request to confirm cancellation indicating captured modalities, if any, from the current capture process will be lost ▪ <i>UC – Fingerprints.01 - Capture Fingerprints</i>
Step 2	Operator points camera toward the presenter
Step 3	MobileID application displays to the operator a preview of the content of the view finder.
Step 4	Operator takes the picture.
Step 5	<p>MobileID application presents to operator:</p> <ul style="list-style-type: none"> • The picture taken • Options to: <ul style="list-style-type: none"> ▪ Retake picture (repeat Step 2 to Step 5) ▪ <i>UC – Transmit.01 - Transmit (conditional, see Exception)</i> ▪ <i>UC – MID.03 - MobileID Home</i> ▪ <i>UC – Fingerprints.01 - Capture Fingerprints</i> <p>–OR–</p> <ul style="list-style-type: none"> • Operator cancels capture process. MobileID application presents to the operator : <ul style="list-style-type: none"> ▪ a request to confirm cancellation indicating any captured modalities from the current capture process will be lost ▪ Upon operator confirmation, <i>UC – MID.03 - MobileID Home</i>
Exceptions, Error Situations	
Exceptions	<ul style="list-style-type: none"> • “Transmit” will only be available - <ul style="list-style-type: none"> ▪ when all mandatory fingerprints are captured
Errors	<ul style="list-style-type: none"> •
Open Issues/Notes	

3.2.4 Use Case – Transmit

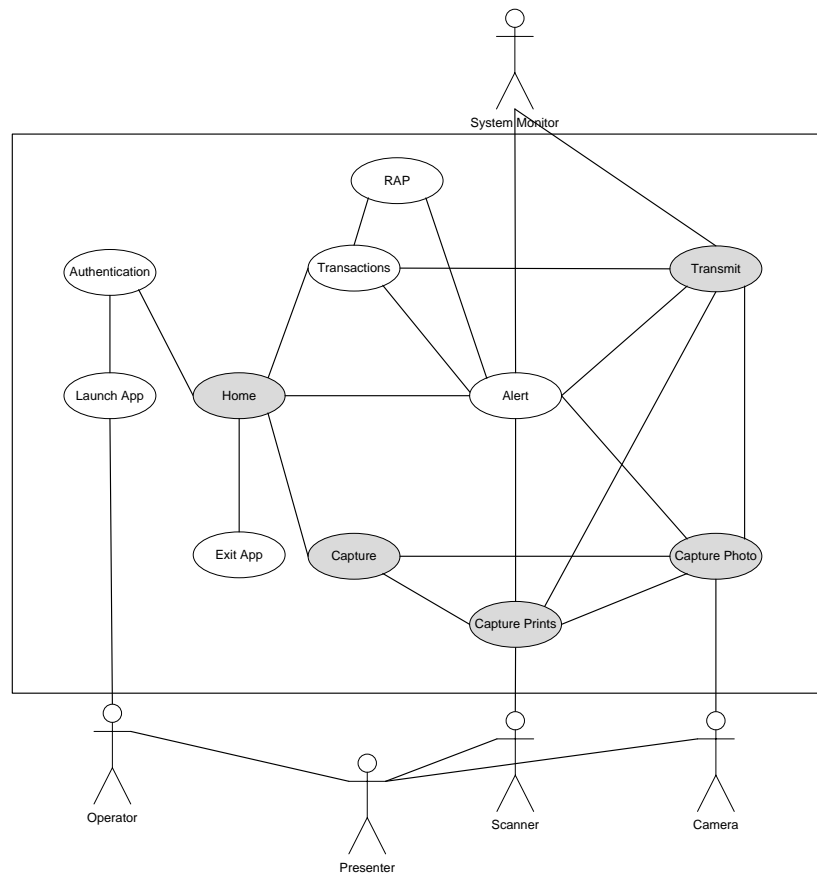


Figure 5 Transmit

3.2.4.1 UC – Transmit.01 - Transmit Transaction

UC- Transmit.01	Transmit Transaction
Actors	Operator
Precondition	MobileID application successfully launched and all mandatory fingerprints are captured
Postcondition	Transaction has been submitted to repositories
Includes	
Extends From	
Super Use Case	UC – Capture.01
Trigger	<ul style="list-style-type: none"> Operator chooses the “Transmit” in UC – <i>Fingerprint.01</i>. <p>–OR–</p> <ul style="list-style-type: none"> Operator chooses the “Transmit” in UC – <i>Photo.01</i>.
Description	
After all mandatory fingerprints for a transaction have been captured, operator can transmit the transaction. The MobileID application transmits the transaction	

Process Description	
Primary Process Scenario	Transmit a Transaction
Step 1	MobileID application starts transmission.
Step 2	<p>MobileID application presents to the operator:</p> <ul style="list-style-type: none"> • Indication of transaction status (transmitted) • Options to: <ul style="list-style-type: none"> ▪ UC – Capture.01 to capture another presenter’s biometrics ▪ UC – Transactions.01 to view Transactions ▪ UC – MID.03 MobileID Home
Exceptions, Error Situations	
Exceptions	<ul style="list-style-type: none"> • Connectivity is not available upon transmission <ul style="list-style-type: none"> ▪ Application presents to the operator: <ul style="list-style-type: none"> ○ Indication of connectivity status ○ Indication of transaction status as pending for transmission • When connectivity is re-established: <ul style="list-style-type: none"> ▪ Any pending transactions are transmitted
Errors	
Open Issues/Notes	

3.2.5 — Use Case – Transactions

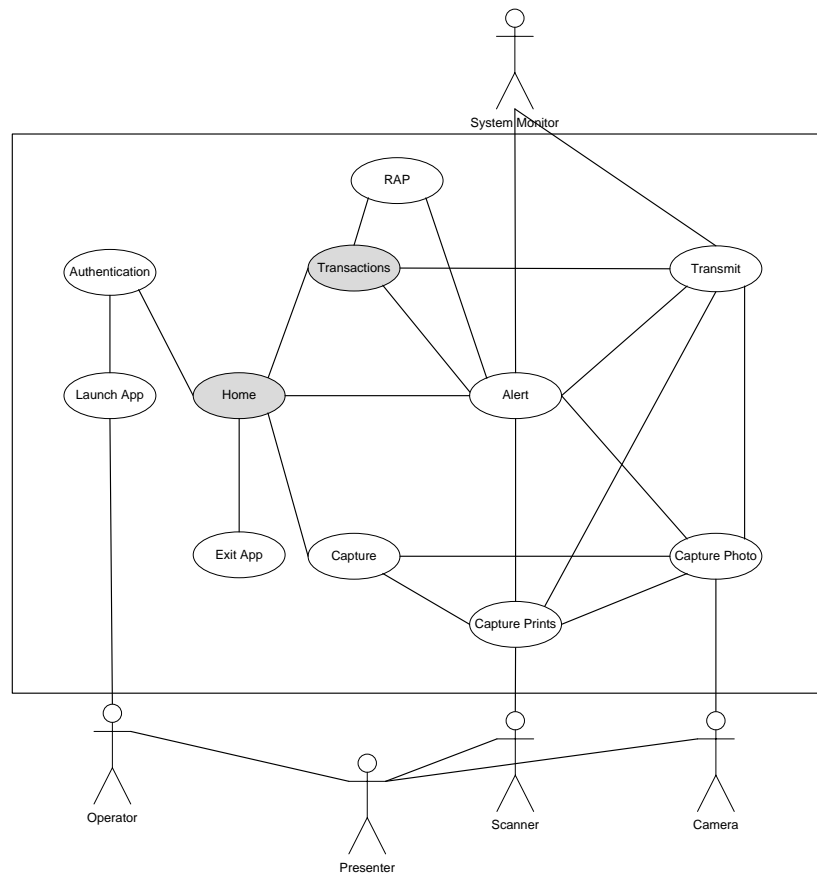


Figure 6 Transactions

3.2.5.1 UC – Transactions.01 - Display Transactions

UC- Transactions.01	Display Transactions
Actors	Operator
Precondition	MobileID application successfully launched
Postcondition	Transactions displayed
Includes	
Extends From	
Super Use Case	<ul style="list-style-type: none"> • UC – MID.03 • UC – Transmit.01
Trigger	Operator decides to access transactions feature of the MobileID application
Description	
The MobileID application will display all available transactions.	

Process Description	
Primary Process Scenario	Transactions
Step 1	<p>MobileID application resets the alert indication (if any, from UC-Alert.01)</p> <p>MobileID application presents to the operator:</p> <ul style="list-style-type: none"> All transactions displayed chronologically Indication of transaction status, possible statuses are: <ul style="list-style-type: none"> <i>Transmitted</i>, i.e. transmitted to repositories awaiting responses <i>Pending</i>, i.e. awaiting transmission <i>Responded</i> (with indication of repository and type of responses) <ul style="list-style-type: none"> Responses include: <ul style="list-style-type: none"> Viable candidate (match) Low match score No viable candidate (no match) New transaction statuses from any system initiated status change, e.g. from “pending” to “transmitted”. Options to <ul style="list-style-type: none"> <i>UC – MID.03</i> - MobileID Home <i>UC – Capture.01</i> - Capture biometrics
Step 2	<p>MobileID application presents to the operator for the transactions that match entries in the repository :</p> <ul style="list-style-type: none"> Options to <ul style="list-style-type: none"> <i>UC – Transactions.02</i> - Access the details of the matched transactions
Exceptions, Error Situations	
Exceptions	
Errors	
Open Issues/Notes	
Match results are based on the quality of the captured and exemplar fingerprints. Responses are based on the RISC SRF Field. Local implementations may have other match criteria.	

3.2.5.2 UC – Transactions.02 - View Matched Transaction Response Details

UC- Transactions.02	View matched transaction response details
Actors	Operator
Precondition	At least one matched transaction displayed in UC-Transactions.01.
Postcondition	RAP sheet details displayed
Includes	
Extends From	
Super Use Case	

Trigger	<ul style="list-style-type: none"> Operator chooses to view details while viewing transactions (<i>UC – Transactions.01</i>).
Description	
The MobileID application displays the details for the transaction with “match” response.	
Process Description	
Primary Process Scenario	View matched transaction details while viewing transactions
Step 1	<p>MobileID application presents to operator:</p> <ul style="list-style-type: none"> Repository name that the details come from (default to FBI repository if there is a match): <ul style="list-style-type: none"> The RAP sheet Photograph if available Options to: <ul style="list-style-type: none"> Navigate to available details from other repositories for the transaction Navigate back to view transactions
Step 2	<ul style="list-style-type: none"> Repeat step 1 if operator chooses to view other details option <i>UC – Transactions.01</i> if operator chooses back to view transactions option
Exceptions, Error Situations	
Exceptions	
Errors	
Open Issues/Notes	

3.2.6 Use Case – Alert Notice

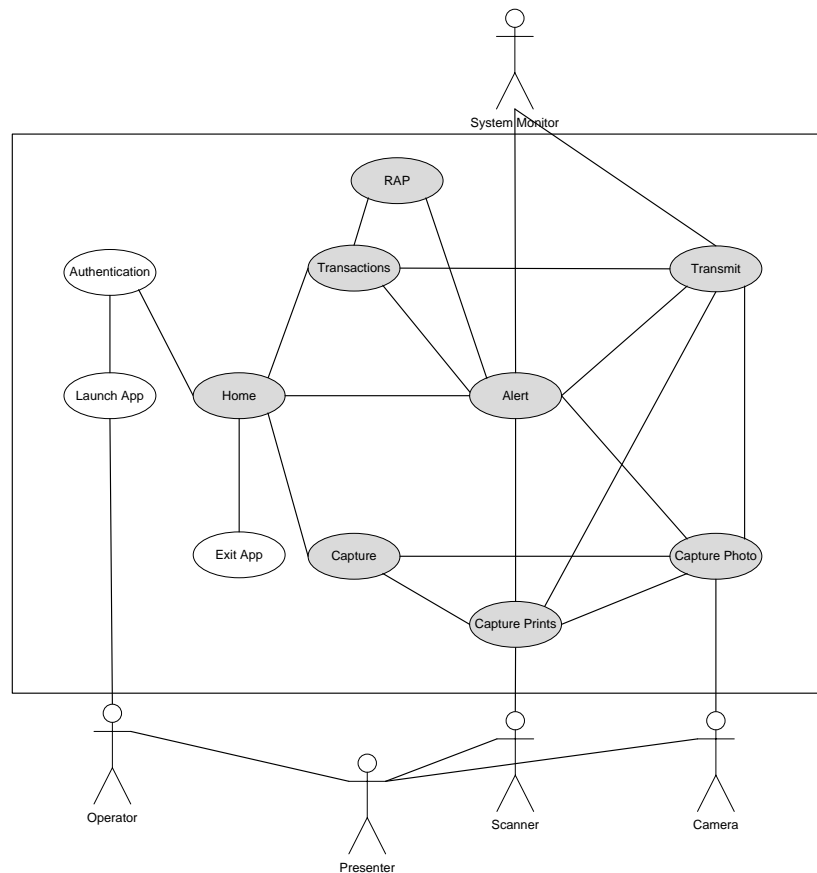


Figure 7 Alert

3.2.6.1 UC- Alert.01 - Alert Notice

UC- Alert.01	Alert Notice
Actors	Operator
Precondition	MobileID application must be launched with an active connection
Postcondition	Matched transaction is indicated
Includes	
Extends From	
Super Use Case	UC – MID.01
Trigger	Successful launch of MobileID application.
Description	
MobileID application will continuously monitor the return responses and indicate when there is a positive match response received.	
Process Description	

Primary Process Scenario	Alert Notice
Step 1	MobileID application: <ul style="list-style-type: none"> • Checks to see if there is a new match response • If there is a new match response, the MobileID application presents to the operator: <ul style="list-style-type: none"> • An indication of new match transaction
Exceptions, Error Situations	
Exceptions	
Errors	
Open Issues/Notes	

4 References

1. FBI: Technical Specifications Document for the Repository for Individuals of Special Concern (RISC) Prototype Project, version 2.3, October 01, 2009